

Comprehension of the Quantifiers “Unos” and “Algunos” in Adult L2 Learners of Spanish

A Senior Honors Thesis

Presented in Partial Fulfillment of the Requirements for graduation
with research distinction in Spanish in the undergraduate colleges
of The Ohio State University

by

Carissa Maatman

The Ohio State University
June 2009

Project Advisor: Prof. John Grinstead, Department of Spanish and Portuguese

Acknowledgments

Throughout this project, I have come to appreciate the dynamic research process that has strengthened me both academically and as a person. I am truly thankful to everyone who has helped and encouraged me along this path of discovery: Special thanks to Prof. John Grinstead for helping my aspirations become a reality and for being not just an advisor, but a mentor. I am also thankful to the following for their generous help in carrying out this research project:

Marissa Vargas-Tokuda, Juliana De la Mora, Mariana Vega-Mendoza, Meghan Armstrong, Prof. Scott Schwenter, Prof. Javier Gutiérrez-Rexach, Prof. Mary Beckman and Prof. Silvina Montrul. Finally, I am incredibly grateful for my friends and family who have supported me every step of the way.

This research project was funded by Arts & Sciences Undergraduate Research Scholarships and by the Summer Research Opportunities Program (SROP).

Abstract

While there is discussion concerning the extent of second language (L2) learner access to Universal Grammar, less is known about L2 learner abilities for developing target-like pragmatic competence. One prominent theory (Sorace 2000, Sorace & Filiaci 2006) argues that constructions at the syntax-discourse interface should be the most difficult to learn. In a series of Truth Value Judgment tasks, we explore the ability of native speakers of English, learning Spanish as a second language, to develop a target-like competence using the pragmatic implicatures associated with the existential quantifiers *unos* and *algunos*. In both languages, there is an existential quantifier that may be pragmatically enriched with a “some, but not all” interpretation: *some* in English, *algunos* in Spanish. This conversational/pragmatic implicature may be canceled in downward-entailing environments, such as the antecedent of a conditional sentence, and is signaled in English through intonation on a single lexical item. In contrast, Spanish uses two separate lexical items to create the same meaning. Existential quantification that is not subject to pragmatic enrichment also shows cross-linguistic variation. Spanish uses *unos*, which does not carry the implicature in discourse-novel contexts, whereas English uses a phonologically-reduced form of *some*, which we spell *sm* (cf. Postal 1964, Milsark 1977), for this expression. The overall difference seems related to the fact that English signals the “some, but not all” pragmatic implicature by an L+H* pitch accent, unlike Spanish. Although *unos* and *algunos* are not phonologically-reduced, L2 learners of Spanish may erroneously conclude that, by lacking an L+H* pitch accent, neither quantifier is pragmatically enriched. Since Spanish and English differ in their expression of existential quantification, target-like use cannot be acquired correctly in L2 Spanish by transfer from English alone, as proposed by the “transfer” dimension

of the Full Transfer-Full Access theory of Schwartz & Sprouse (1996). It would seem that the “Full Access” dimension of this theory makes no claims to linguistic pragmatics, which may lie outside the scope of grammar. Data collection is ongoing, but preliminary results suggest that L2 learners are not able to learn target-like pragmatic implicatures, supporting Sorace’s (2000, Sorace & Filiaci 2006) theory.

Table of Contents

Acknowledgments	2
Abstract	3
Table of Contents	5
1. Background Information	6
1.1 Introduction	6
1.2 <i>Some</i> and <i>Sm</i> in English: the Effects of Intonation	7
1.3 <i>Algunos</i> and <i>Unos</i> in Spanish: the Effects of Contrastive Properties and Context	8
1.4 Full Transfer/Full Access in L2 Learners	10
1.5 Advanced Optionality in L2 Ultimate Attainment	11
1.6 Semantics and Pragmatics in L2 Acquisition	12
2. Experiment I- Comprehension of Implicature Generation	14
2.1 Participants	14
2.2 Procedures	14
2.3 Results and Discussion	16
3. Experiment II- Comprehension of Implicature Cancellation	18
3.1 Participants	18
3.2 Procedure	19
3.3 Results and Discussion	21
4. Summary and Conclusions	22
4.1 Assessment of L1 Data	23
4.2 Transfer in Bilinguals	25
4.3 Conclusions	26
Appendix A	27

1. Background Information

1.1 Introduction

A continued topic of debate concerning the theory of second language (L2) acquisition has been the degree to which a learner's first language (L1) grammar and innate linguistic ability, sometimes referred to as Universal Grammar (UG) (cf. White 2003), are available to adult learners of second languages. Of particular interest has been the attempt to understand the specific content of the L2 initial state that forms the basis upon which L2 learners begin building linguistic knowledge of a new language. Schwartz and Eubank (1996) draw attention to the need for an explanation of L2 grammatical development as a dynamic process, opposing the mere affirmation or negation of L1 influence on L2 acquisition. The cognitive pathway that students travel in learning a second language can, therefore, be marked by a series of interlanguage grammars (White 2003) in which each subsequent grammar contains restructurings of the learner's linguistic L2 knowledge. Very little work has been done on the relationship between pragmatics and semantics in L2 learning, although there have been some initial attempts which show good proficiency in Korean learners of English (e.g. Slabakova 2007). In this study, we investigate the degree to which these dimensions of language transfer from English and develop in adult L2 learners of Spanish in light of the Full Transfer/Full Access model of Schwartz & Sprouse (1996).

Our experiment tests L2 learners' comprehension of the contrastive means used to express existential quantification in Spanish and English. In each language, there is an existential determiner that may be pragmatically enriched with a "some, but not all" interpretation: *some* in English and *algunos* in Spanish. For each quantifier, a downward-

entailing environment, such as the antecedent of a conditional sentence (Ladusaw 1979), will cancel this conversational implicature. In contrast to this similarity, Spanish and English differ with respect to whether and how existential quantifiers resist pragmatic enrichment.

In Spanish, *unos* is not subject to a “some, but not all” interpretation when it occurs in the absence of contrastive focus in discourse-novel (non D-linked) situations (Vargas-Tokuda et al. 2008), or those in which the exact subject of a sentence has not previously been established in relevant discussion. Other important details concerning *unos* will be discussed further in Section 3. As for English, however, an unstressed and phonologically-reduced form of *some*, which we spell *sm* (cf. Postal 1964, Milsark 1977), signifies the pure existential determiner instead of a unique word per se. As such, the main difference between each languages’ use of these quantifiers appears to rely on the fact that English resolves ambiguity between pure existential and pragmatic implicature meanings by intonation of a single word, whereas Spanish depends on contrastive properties of two separate lexical items and their relation to linguistic context.

1.2 Some and Sm in English: the Effects of Intonation

Deaccented English *some* is ambiguous between an implicature reading, having the pragmatically enriched “some, but not all” interpretation, as in (1), and a pure existential reading, which semantically denotes “a group, and possibly all”, as in the downward-entailing context of (2). A downward-entailing (DE) environment is one in which there is a decrease in semantic specificity between a given sentence and its implicated meaning. In (2), the antecedent ‘if some students pass’ entails that even ‘if all students pass’, the same outcome is true. As *all* applies to a broader group than does *some*, there is a decrease in semantic strength (i.e. a downward-

entailing environment). *Sm*, on the other hand, can only have the pure existential reading seen in (3).

- (1) A: Are you a hard grader?
B: Well, *some* students pass my test.
(Some students, but not all, pass.)
- (2) A: If *some* students pass my test, you owe me \$10.
(If some or even all pass, you owe me \$10.)
- (3) A: What happened this week in your class?
B: *Sm* students passed my test.
(There are students that passed; it could be all of them.)

As a stress-timed language, English allows reduction, and sometimes deletion, of unstressed vowels, as in this case of *some* becoming *sm*. In order to derive the implicature reading of B's response in (1), it is necessary that *some* has either an L+H* stress or a Fall-Rise intonation pattern, as detailed by Ward & Hirschberg (1985), under which pitch accent is associated with a stressed syllable (e.g. L*+H⁻L⁻H%, in the notation of the Pierrehumbert 1980). If the sentence's nuclear accent does not fall on the quantifier, the implicature interpretation is lost to the pure existential meaning denoting context-independent existence of a group. In the case of *sm*, vowel reduction makes it impossible to associate a pitch accent with this lexical item in the first place, due to lack of a vocalic nucleus. In short, the result is that *sm* cannot carry the linguistic ambiguity brought on by possible verbal stress or Fall-Rise intonation as is applied to the vocalic nucleus of *some*.

1.3 Algunos and Unos in Spanish: the Effects of Contrastive Properties and Context

Apart from the obvious distinction that Spanish uses two unique lexical items while English has only one distinct term, the primary difference between these language systems seems

to relate to the defining role of intonation and unstressed vowels in English. In Spanish, *algunos* is ambiguous, like English *some*, between an implicature reading, as in (4), and a pure existential reading seen in the DE environment of (5). *Unos*, contrastively, has only a pure existential reading in our example in (6), like English *sm*. The following sentences (4)-(6) are rough translations of (1)-(3).

- (4) A: ¿Eres muy estricto al calificar a tus alumnos?
‘Are you a hard grader?’
- B: Pues, *algunos* alumnos aprueban mis exámenes.
‘Well, some-*algunos* students pass my test.’
(Some, but not all, pass.)
- (5) A: Si *algunos* alumnos aprueban el examen, me debes \$10.
‘If some-*unos* students pass the test, you owe me \$10.’
(If some or even all pass, you owe me \$10.)
- (6) A: ¿Qué pasó con tu clase esta semana?
‘What happened in your class this week?’
- B: Unos alumnos aprobaron mi examen.
‘Some-*unos* students passed my test.’
(There are students that passed; it could be all of them.)

In Spanish, the contextual use of *unos* and *algunos* functions as importantly as does intonation in English for implicature generation. Vargas-Tokuda et al. (2008) details that *algunos* has a restricted resource domain (D-linked) which limits its application to contexts in which all sub-parts of the set under consideration must be salient in the conversational common ground. For example, the resource domain of B’s response in (4) is comprised of both the students who passed the test and those who did not. By referring to a known quantity, *algunos* inherently generates a “some, but not all” pragmatic implicature. In the case of a DE

environment, however, such as in (5), the implicature is cancelled (Chierchia, Crain, Guasti, Gualmini & Meroni 2001). Here, while the set values must still refer to contextually salient subjects for *algunos*, it becomes possible that the condition of the antecedent still be met even if all students pass the test.

In contrast, *unos* is not D-linked and, thus, has a pure existential interpretation of “some, and possibly all”, not being inherently limited to a salient set¹. This elicited meaning cannot be cancelled in DE environments because it results from semantic properties of *unos*, not from generated contextual meaning. These contrastive properties of *unos* and *algunos* become crucial in our discussion of methodology section.

1.4 Full Transfer/Full Access in L2 Learners

Schwartz & Sprouse (1996) propose a two-part model of L2 acquisition, known as Full Transfer/Full Access (FT/FA), in which the final grammatical understanding of an individual’s L1 represents the beginning stages of his or her second language development (Full Transfer) upon which infelicitous transfer into one’s new language leads to forced alterations to input representation based on options of Universal Grammar (Full Access). Such a hypothesis comes in contrast to other models, such as Minimal Trees (Vainikka & Young-Scholten 1996) and Weak Transfer (Eubank 1994) which exclude functional categories (within which we find the determiners *some*, *unos* and *algunos*) as elements transferred in entirety to the L2 initial state.

¹It is noted, however, that under contrastive focus by syntactic construction (7) or by prosodic influence such as verbal stress (8), *unos* may receive a “some, but not others” interpretation, although there is still the possibility that both the domain of *unos* and its alternatives be discourse novel, unlike with *algunos* (Vargas-Tokuda et al. 2008).

- (7) UNOS estudiantes aprobaron el examen, y no otros.
‘Some students passed the test, and not others.’
- (8) Si UNOS estudiantes aprueban el examen, me debes \$10.
‘If some students (and not others) pass the test, you owe me \$10.’

The idea in FT/FA is that virtually all L1 grammar (with the exclusion of phonetic matrices of L1 lexical items) transfers in L2 acquisition and that subsequent changes to this L2 initial state create stages of comprehension constrained by UG, called interlanguage grammars (White 2003). These should be recognized as independent representations of language in dynamic L2 linguistic development.

The FT/FA model predicts similar, initial categorization of both *unos* and *algunos* into a single representation of *some*, given that pure existential quantifiers in Spanish are roughly as conversationally accented as those that are pragmatically enriched. If intonation patterns and pragmatic implicatures are transferred from English into Spanish, L2 learners might incorrectly create a non-native L+H* pitch accent requirement for generation of the “some, but not all” pragmatic implicature. Without this signal, which is used in the Spanish system, albeit less frequently and under circumstances that are not well-understood in contrast to English, L2 learners of Spanish are expected to consistently associate both quantifiers with a truth conditional meaning, showing little sensitivity to contrastive properties and contexts introduced by two, separate lexical items in the target language. In order to comprehend the linguistic properties of *unos* and *algunos* in a native-like way, L2 learners will have to restructure their L2 initial state (being the final L1 state in English). Significant changes across proficiency levels, therefore, may indicate possible evidence of existent interlanguage grammars.

1.5 Advanced Optionality in L2 Ultimate Attainment

While interlanguage grammars may indicate stages in L2 development and evidence for UG, they are not necessarily part of a progression guaranteed to yield native-like understanding.

Sorace (1999) attributes the persistence of optionality, even in advanced L2 grammars, to the absence of sufficient exposure to robust grammatical forms that would distinguish target and non-target options. Prolonged disagreement between co-existent forms (constraints from L1 and L2), therefore, may lead to advanced optionality in near-native speakers, established as the result of unsuccessful interlanguage grammars and failure to cancel the transferred L1 setting. In this study, evidence of interlanguage grammars not demonstrating target-like performance with *unos* and *algunos* would suggest residual optionality, given the fact that L2 learners are rarely provided sufficient examples or instruction pertaining to native-like use of these quantifiers.

1.6 Semantics and Pragmatics in L2 Acquisition

Interlanguage grammars, and possible optionality with regard to *unos* and *algunos*, ultimately help us understand L2 development at the interface between semantics and pragmatics. Most of the past research in the field of L2 acquisition has dealt primarily at the level of syntax and semantics (Hulk & Müller 2000, Vainikka & Young-Scholten 1996) and not the semantics-pragmatics relation which we now investigate. As previously discussed, *unos* and *algunos* have contrastive properties specifically relating to the set values with which each can be associated (Vargas-Tokuda et al. 2008). D-linked *algunos* has certain set values created by the “some, but not all” pragmatic implicature. Changes in L2 learner proficiency with *algunos* implicature generation and cancellation in successive versions of interlanguage grammars, therefore, could give insight into the development of pragmatics in L2 acquisition. *Unos*, however, has other set values created by focus properties, as a function of lexical semantics, such

that differences in proficiency with this non D-linked quantifier in a progression of interlanguage grammars would suggest developmental patterns of semantics within the realm of L2 learning.

Vargas-Tokuda et al. (2008) found that monolingual Spanish-speaking children as young as four years of age seemed to have roughly equal access to the area of pragmatics investigated here as they do with syntax-semantics in child language development. It would be noteworthy, then, if adult L2 learners of Spanish showed comprehension of the same D-linked *algunos* and non D-linked *unos* sets like that of monolingual children and adults of Spanish, despite lacking an initial representation for such input in their final L1 state and the absence of robust input in their L2.

In short, our experiment explores not only the strength of the FT/FA model by the degree to which adult native English-speaking L2 learners of Spanish display transfer of pragmatic and semantic comprehension from English, but also possible restructurings under UG in the active development of L2 acquisition. Specifically, we explore two syntactic constructions in two semantic environments: (1) whether adult L2 learners of Spanish are able to generate a pragmatic implicature with *algunos* while recognizing that it does not work with *unos* and (2) whether L2 learners can subsequently cancel this implicature on *algunos* in downward-entailing environments while still taking the pure existential meaning of *unos* by its lexically-defined properties. Performance with *unos* and *algunos* by English-speaking adult L2 learners of Spanish will help answer the question: does transfer occur at the semantics-pragmatics interface?

2. Experiment I- Comprehension of Implicature Generation

In this task, we investigated whether adult L2 learners of Spanish would be able to generate the “some, but not all” pragmatic implicature associated with D-linked *algunos*, while also recognizing the alternative set associated with *unos*, in order to study possible transfer of an L+H* pitch accent requirement and of pragmatic implicatures in L2 acquisition.

2.1 Participants

The participants in this study were 18 native English-speaking adults, from 3 proficiency levels (9 beginner, 5 intermediate and 4 advanced), enrolled in undergraduate and graduate Spanish courses at The Ohio State University and the University of Iowa. Additionally, there were 28 native adult speakers of Spanish (26 from Mexico, 2 from Spain).

2.2 Procedures

Using a series of Truth Value Judgment tasks adapted from Crain & McKee (1985), we designed an Internet-based test in which participants were presented with several short video clips, each containing a yes-no question about the appropriateness of a given sentence involving *unos*, *algunos* or a filler (*todos* or *un*). Both L1 speakers and L2 learners of Spanish were shown videos of a native speaker of Spanish playing with 1 of 12 sets of animals², a barn and an assortment of barnyard items. In each scene, a set of 4 animals was positioned on a table facing a barn blocked by two objects (a tractor, bags of trash, a bale of hay or a box). The speaker then acted out a scenario with the figurines in which the animals had to jump over one of the two

²According to Gutiérrez-Rexach (2001, 2004), *unos* has a property of discourse novelty. As such, each target sentence introduces a different set of referents for each question type.

objects in order to eat in the barn. After debating among themselves as to whether to jump over objects in their path, either 1, 2 or 4 of the 4 animals jumped over the object on the left. The point of debating was to create a context of doubt regarding the number of figurines that would jump, forcing the participant to focus on this feature of the discourse. This focus was conducive to implicature generation. After each scenario, the speaker asked the participants if it was okay to say a given sentence (“¿Está bien dicho que ____?”), based on the scene, like those in (9):

- (9) (a) Training/filler sentence:
 Todos los Q saltaron sobre A.
 every the Q jumped over A
 ‘Every Q jumped over A.’
- (b) Training/filler sentence:
 Un P saltó sobre A.
 a P jumped over A
 ‘A P jumped over A.’
- (c) Target sentences (four of each):
Algunos X saltaron sobre A.
 some-A X jumped over A
 ‘Some-A Xs jumped over A.’
- Unos* Y saltaron sobre A.
 some-B Y jumped over A
 ‘Some-B Ys jumped over A.’

All participants were first given a training sentence to ensure comprehension of the task, followed by 8 target sentences (4 with *algunos* and 4 with *unos*) and 3 filler sentences, arranged approximately 3:1 targets to fillers. Of the target sentences for each quantifier, 2 occurred with 4 of 4 animals (all) jumping over an object and 2 with just 2 of 4 animals jumping (some, but not all). Subjects had to correctly respond to the training sentence and at least 5/6 of the total fillers

across Experiments I and II in order to participate in this study. A still frame of one of the videos can be seen in Figure 1, and all sentences used are included in Appendix A.



Figure 1- Sample still frames from Experiment I

After completing both Experiments I and II, L2 learners only were also asked to complete a proficiency test and language profile questionnaire³ for placement into one of three proficiency levels (beginner, intermediate or advanced). All participants took the experiment online, and all instructions and consent forms were translated into Spanish prior to their use in Mexico.

2.3 Results and Discussion

As a group, L2 learners accepted both *algunos* and *unos* as descriptions of 4 out of 4 animals jumping over an object (81% acceptance of *algunos* and 92% acceptance of *unos*). In contrast, L1 native Spanish speakers showed a distinction between the two quantifiers, with only 18% acceptance of *algunos* but 59% acceptance with *unos*, in the same situation.

³The proficiency test and language profile questionnaire were presented after the experiment itself to allow each participant's attention to be at its peak for the duration of the actual study. The content of this portion was provided by Prof. Silvina Montrul of the University of Illinois.

	<i>Algunos</i>		<i>Unos</i>	
	Accepted	Rejected	Accepted	Rejected
L2 Learners (n=18)	81% (29/36)	19% (7/36)	92% (33/36)	8% (3/36)
L1 Speakers (n=28)	18% (10/56)	82% (46/56)	59% (33/56)	41% (23/56)

Table 1. Percentages of responses when 4 of 4 animals jumped (L2 vs. L1)

	<i>Algunos</i>		<i>Unos</i>	
	Accepted	Rejected	Accepted	Rejected
L2 Learners (n=18)	83% (30/36)	17% (6/36)	94% (34/36)	6% (2/36)
L1 Speakers (n=28)	96% (54/56)	4% (2/56)	100% (56/56)	0% (0/56)

Table 2. Percentages of responses when 2 of 4 animals jumped (L2 vs. L1)

Of most interest is the highly significant difference between L1 speaker and L2 learner interpretation of *algunos* across Table 1 and Table 2. Comparison of this data shows a clear change in response by L1 speakers with *algunos* from when all 4 animals jump to when only 2 of 4 animals jump, from 18% to 96% acceptance, respectively ($X^2(1, N=28) = 70.58, p<0.005$). However, L2 learners demonstrate consistent treatment of *algunos* as a pure existential, not enriched by a pragmatic implicature across scenarios, with insignificant differences between 81% and 83% acceptance rates ($X^2(1, N=18) = 0.09, p=0.759$). This lack of sensitivity to *algunos* between participant groups suggests that L2 learners are unaware of conversational scalar implicatures. While there are too few L2 learner responses across groups in Table 3 and Table 4 to make robust claims, it does tentatively appear that this unawareness of pragmatic implicatures reaches even those at high proficiency levels.

	<i>Algunos</i>		<i>Unos</i>	
	Accepted	Rejected	Accepted	Rejected
L2 Beginner Learners (n=9)	94% (17/18)	6% (1/18)	94% (17/18)	6% (1/18)
L2 Intermediate Learners (n=5)	50% (5/10)	50% (5/10)	80% (8/10)	20% (2/10)
L2 Advanced Learners (n=4)	88% (7/8)	13% (1/8)	100% (8/8)	0% (0/8)
L1 Speakers (n=28)	18% (10/56)	82% (46/10)	59% (33/56)	41% (23/56)

Table 3. Percentages of responses when 4 of 4 animals jumped (by proficiency level)

	<i>Algunos</i>		<i>Unos</i>	
	Accepted	Rejected	Accepted	Rejected
L2 Beginner Learners (n=9)	72% (13/18)	28% (5/18)	94% (17/18)	6% (1/18)
L2 Intermediate Learners (n=5)	100% (10/10)	0% (0/10)	100% (10/10)	0% (0/10)
L2 Advanced Learners (n=4)	88% (7/8)	13% (1/8)	88% (7/8)	13% (1/8)
L1 Speakers (n=28)	96% (54/56)	4% (2/56)	100% (56/56)	0% (0/56)

Table 4. Percentages of responses when 2 of 4 animals jumped (by proficiency level)

3. Experiment II- Comprehension of Implicature Cancellation

In this task, we investigated whether adult L2 learners of Spanish would be able to cancel the “some, but not all” pragmatic implicature associated with *algunos* as a function of its downward-entailing context, as well as recognize the alternative set associated with *unos* as a function of its lexical meaning, in order to observe a distinction between implicature-generating and implicature-canceling contexts in L2 acquisition.

3.1 Participants

Participants were the same as in Experiment I.

3.2 Procedures

This experiment used a second series of Truth Value Judgment tasks adapted from Crain & McKee (1985) in an Internet-based test, with slight changes in methodology to that of Experiment I. Participants were still presented with several short video clips, each containing a yes-no question. In each video, the same native speaker of Spanish appeared with a barn and 1 of 12 sets of animals⁴, with 4 animals to a set. After placing a set of animals on a table in front of a closed barn, the speaker told participants that she enjoys playing games with animal figurines (“A mí me gusta hacer juegos de adivinanzas con figuritas.”).

Unlike Experiment I, however, in which subjects were asked to assess the appropriateness of a given sentence, Experiment II required participants to assess whether each scenario satisfied a certain conditional sentence. After naming the condition under which she should earn a point, the speaker collected the animals and placed 0, 1, 2 or 4 of the 4 animals inside the barn, out of participant view. Then the speaker opened the barn doors, asking participants if she should receive a point, based on the scene (“¿Qué te parece? ¿Recibo un punto?”). Conditional sentences were like those in (10):

- (10) (a) Target/filler sentences:
Si todos los Q están en el establo, yo recibiré un punto.
if every the Q are in the barn get-I a point
‘If every Q is in the barn, I get a point.’
- (b) Target/filler sentence:
Si hay un P en el establo, yo recibiré un punto.
if there is a P in the barn get-I a point
‘If there is a P in the barn, I get a point.’

⁴Again, according to Gutiérrez-Rexach (2001, 2004), *unos* has a property of discourse novelty. As such, each target sentence introduces a different set of referents for each question type.

(c) Target sentences (four of each):

Si hay *algunos* X en el establo, yo recibiré un punto.
if there are some-A X in the barn get-I a point.
'If there are some-A Xs in the barn, I get a point.'

Si hay *unos* Y en el establo, yo recibiré un punto.
if there are some-B Y in the barn get-I a point.
'If there are some-B Ys in the barn, I get a point.'

Similarly to Experiment I, all participants were first given a training sentence to ensure comprehension of the task, followed by 8 target sentences (4 with *algunos* and 4 with *unos*) and 3 filler sentences, arranged approximately 3:1 targets to fillers. Again, each quantifier occurred twice with 4 of 4 animals (all) appearing in the barn and twice with 2 of 4 animals in the barn (some, but not all). Correct responses on at least 5/6 of the total fillers across Experiments I and II were required for participation. A still frame of one of the videos can be seen in Figure 2, and all sentences used are included in Appendix A.



Figure 2- Sample still frames from Experiment II

After completing both Experiments I and II, L2 learners only were also asked to complete a proficiency test and language profile questionnaire⁵ for placement into one of three proficiency

⁵The proficiency test and language profile questionnaire were presented after the experiment itself to allow each participant's attention to be at its peak for the duration of the actual study. The content of this portion was provided by Prof. Silvina Montrul of the University of Illinois.

levels (beginner, intermediate or advanced). All participants took the experiment online, and all instructions and consent forms were translated into Spanish prior to their use in Mexico.

3.3 Results and Discussion

As a group, L2 learners agreed that the antecedents of our conditional sentences (i.e. downward-entailing environments) allowed for use of both *algunos* and *unos*, even when 4 out of 4 animals were in the barn (78% acceptance of *algunos* and 92% acceptance of *unos*). While control data in Table 5 are weak (addressed in Section 4.1), L1 native speakers of Spanish show a roughly similar preference, with 57% allowing *algunos* and 66% allowing *unos* under the same circumstances. In this experiment, L2 learners do appear to respond similarly to L1 speakers of Spanish.

	<i>Algunos</i>		<i>Unos</i>	
	Accepted	Rejected	Accepted	Rejected
L2 Learners (n=18)	78% (28/36)	22% (8/36)	92% (33/36)	8% (3/36)
L1 Speakers (n=28)	57% (32/56)	43% (24/56)	66% (37/56)	34% (19/56)

Table 5. Percentages of responses when 4 of 4 animals were in the barn (L2 vs. L1)

	<i>Algunos</i>		<i>Unos</i>	
	Accepted	Rejected	Accepted	Rejected
L2 Learners (n=18)	83% (30/36)	17% (6/36)	89% (32/36)	11% (4/36)
L1 Speakers (n=28)	95% (53/56)	5% (3/56)	98% (55/56)	2% (1/56)

Table 6. Percentages of responses when 2 of 4 animals were in the barn (L2 vs. L1)

We find that this is true, even across proficiency levels (beginner, intermediate and advanced), although there are still too few participants to make a robust claim concerning fluency levels.

	<i>Algunos</i>		<i>Unos</i>	
	Accepted	Rejected	Accepted	Rejected
L2 Beginner Learners (n=9)	72% (13/18)	28% (5/18)	83% (15/18)	17% (3/18)
L2 Intermediate Learners (n=5)	100% (10/10)	0% (0/10)	100% (10/10)	0% (0/10)
L2 Advanced Learners (n=4)	62% (5/8)	38% (3/8)	100% (8/10)	0% (0/8)
L1 Speakers (n=28)	57% (32/56)	43% (24/56)	66% (37/56)	34% (19/56)

Table 7. Percentages of responses when 4 of 4 animals were in the barn (by proficiency level)

	<i>Algunos</i>		<i>Unos</i>	
	Accepted	Rejected	Accepted	Rejected
L2 Beginner Learners (n=9)	83% (15/18)	17% (3/18)	78% (14/18)	22% (4/18)
L2 Intermediate Learners (n=5)	90% (9/10)	10% (1/10)	100% (10/10)	0% (0/10)
L2 Advanced Learners (n=4)	75% (6/8)	25% (2/8)	100% (8/8)	0% (8/8)
L1 Speakers (n=28)	95% (53/56)	5% (3/56)	98% (55/56)	2% (1/56)

Table 8. Percentages of responses when 2 of 4 animals were in the barn (by proficiency level)

From this data, we can see that neither participant group generated the “some, but not all” pragmatic implicature as seen previously by L1 speakers in Table 1 with *algunos*. While this suggests cancellation of the pragmatic implicature by L1 speakers, it only appears that L2 learners continue to interpret both quantifiers with a pure existential meaning, being that this group did not show signs of implicature generation in Experiment I. In fact, there is no significant difference between L2 learner responses for either quantifier across all four scenarios ($X^2(3, N=18) = 0.501, p=0.919$ for *algunos* and $X^2(3, N=18) = 0.727, p=0.867$ for *unos*). It appears that, while L1 speakers are at least able to perceive a difference in pragmatic implicature behavior between the upward-entailing and downward-entailing contexts in our tasks, L2 learners do not seem to reflect similar sensitivity.

4.1 Assessment of L1 Data

We believe that, while our experiments are not perfect, as illustrated by unexpectedly low percentages correct for L1 speaker responses to *unos* questions in Table 1 and both quantifiers in Table 5, they may nonetheless contain an important kernel of insight regarding L2 perceptions of existential quantifiers. The control group responses we expected were those given in Vargas-Tokuda et al. (2008), illustrated in the following tables (Vargas-Tokuda et al. 2008 pp. 520-522).

	<i>Algunos</i>		<i>Unos</i>	
	Accepted	Rejected	Accepted	Rejected
Children	30% (8/27)	70% (19/27)	67% (18/27)	33% (9/27)
Adults	20% (2/10)	80% (8/10)	100% (10/10)	0% (0/10)

Table 9. Percentages of responses when all 4 animals jumped

	<i>Algunos</i>		<i>Unos</i>	
	Accepted	Rejected	Accepted	Rejected
Children	85% (23/27)	15% (4/27)	74% (20/27)	26% (7/27)
Adults	100% (10/10)	0% (0/10)	100% (10/10)	0% (0/10)

Table 10. Percentages of responses when 2 or 3 animals jumped

	<i>Algunos</i>		<i>Unos</i>	
	Accepted	Rejected	Accepted	Rejected
Children	81% (22/27)	19% (5/27)	96% (26/27)	4% (1/27)
Adults	80% (8/10)	20% (2/10)	90% (9/10)	10% (1/10)

Table 11. Percentages of responses when all 4 animals were in the bucket

	<i>Algunos</i>		<i>Unos</i>	
	Accepted	Rejected	Accepted	Rejected
Children	89% (24/27)	11% (3/27)	89% (24/27)	11% (3/27)
Adults	100% (10/10)	0% (0/10)	100% (10/10)	0% (0/10)

Table 12. Percentages of responses when 2 or 3 of 4 animals were in the bucket

In using a within subjects design, in which all participants took both Experiments I and II, it appears that L1 speakers may have developed a test-taking strategy to compensate for response discrepancies across sections. This study is based on such a subtle aspect of language that many L1 speakers might not have been aware that the “some, but not all” pragmatic implicature on *algunos* is usually cancelled in conversation, as seen in past work (Vargas-Tokuda et al. 2008). Additionally, our study was realized over the Internet through videos in a test format which may have encouraged development of a test strategy and, at the very least, hindered responses based on first intuition and general conversation habits. Future directions of this study should attempt to overcome this problem by using a between subjects design.

4.2 Transfer in Bilinguals

Despite showing lower percentages of responses from our control group than desired, however, our L1 data does show slight preference for the anticipated trends. Given that L2 learners across both Experiment I and Experiment II do not demonstrate comprehension of *unos* and *algunos* similarly to four year-old, Spanish-speaking children (Vargas-Tokuda et al. 2008), we speculate that conversion of our test to a between subjects design will not greatly change L2 participant understanding, and on that speculative basis, we will suggest tentative conclusions from our data.

For L2 learners, there was no distinction between quantifiers or between their respective roles in upward- versus downward-entailing contexts. We suggest that this lack of awareness may have been a result of transfer of an L+H* pitch accent requirement from English, which was absent in the items of our test, as is consistent with the Spanish system. If L2 learners had transferred intonation patterns, including this L+H* pitch accent requirement, from their L1 final state (English) as their L2 initial state (Spanish), then we would expect that neither quantifier be pragmatically enriched in the target language, even in implicature-generating contexts. Therefore, it would also be impossible for L2 learners to distinguish between contexts that generate pragmatic implicatures and those that do not, since the basic awareness of conversational scalar implicatures is missing in the first place. In combination with the fact that our experiment did not directly signal the pure existential interpretation of *unos* and *algunos* by phonetic deaccenting or vowel reduction (as would the transferred expectation from English), it seems plausible that, instead of being signaled to a certain interpretation, the lack of an L+H* pitch accent prevented generation of the “some, but not all” pragmatic implicature.

4.3 Conclusions

Our results, though tentative, may add insight into the development of pragmatics and semantics in second language acquisition in adults. L2 learners were not able to reflect native-like understanding of the “some, but not all” pragmatic implicature, as predicted by the idea of infelicitous transfer between English and Spanish within the Full Access/Full Transfer model (Schwartz & Sprouse 1996), most likely due to transfer of an L+H* pitch accent requirement. If L2 learners have access to Universal Grammar under this same theory, this capability did not appear to have yielded a successful interlanguage grammar at any proficiency level in our study, supporting the concept that constructs at the syntax-discourse interface should be the most difficult to learn (Sorace 2000, Sorace & Filiaci 2006). While a larger sample size and a redesigned task are necessary, preliminary results suggest that L2 learners maintain advanced optionality in pragmatics, even in ultimate levels of proficiency. This comes in contrast to work by Slabakova (2007), in which initial attempts have shown good proficiency on this front, such that future research will be of great importance.

Appendix A

Questions/Sentences Used by Order of Appearance: Training, Targets and Fillers⁶

Item	Experiment I Question	Action
Training 1IFT	“¿Está bien dicho que todos los leones saltaron sobre la caja?”	2/4 lions, box
Filler 2IFT	“¿Está bien dicho que todos los hipopótamos saltaron sobre la basura?”	4/4 hippopotami, trash
Target 1IUT	“¿Está bien dicho que unas gallinas saltaron sobre la caja?”	4/4 hens, box
Target 2IAP	“¿Está bien dicho que algunos burros saltaron sobre el tractor?”	2/2 donkeys, tractor
Target 1IAT	“¿Está bien dicho que todos los caballos saltaron sobre la cerca?”	4/4 horses, fence
Filler 3IFP	“¿Está bien dicho que una jirafa saltó sobre el heno?”	0/4 giraffes, hay
Target 2IUP	“¿Está bien dicho que unos tigres saltaron sobre la basura?”	2/4 tigers, trash
Target 2IUT	“¿Está bien dicho que unas vacas saltaron sobre el heno?”	4/4 cows, hay
Target 2IAT	“¿Está bien dicho que algunas cebras saltaron sobre el tractor?”	4/4 zebras, tractor
Filler 1IFP	“¿Está bien dicho que un ganso saltó sobre la cerca?”	0/4 geese, fence
Target 1IUP	“¿Está bien dicho que unos gatos saltaron sobre la basura?”	2/4 cats, trash
Target 1IAP	“¿Está bien dicho que algunas cerdas saltaron sobre el heno?”	2/4 sows, hay

⁶ Coding of items is as follows: I-Implicature generation, C-implicature Cancellation, A- Algunos, U-Unos, F-Fillers, T- Todos/All (4/4 animals), P-Partial (2/4 animals).

Item	Experiment II Sentence	Number in Barn
Training 2CFT	“Si están todos los hipopótamos [en el establo], recibiré un punto.”	4/4 hippopotami in barn
Filler 1CFT	“Si están todos los gallos [en el establo], recibiré un punto.”	2/4 roosters in barn
Target 1CAP	“Si hay algunas cerdas [en el establo], recibiré un punto.”	2/4 sows in barn
Target 1CUT	“Si hay unas gallinas [en el establo], recibiré un punto.”	4/4 hens in barn
Filler 1CFP	“Si hay un ganso [en el establo], recibiré un punto.”	0/4 geese in barn
Target 1CAT	“Si hay algunos caballos [en el establo], recibiré un punto.”	4/4 horses in barn
Target 1CUP	“Si hay unos gatos [en el establo], recibiré un punto.”	2/4 cats in barn
Target 2CUP	“Si hay unos tigres [en el establo], recibiré un punto.”	2/4 tigers in barn
Filler 3CFT	“Si están todos los elefantes [en el establo], recibiré un punto.”	2/4 elephants in barn
Target 2CAT	“Si hay algunas cebras [en el establo], recibiré un punto.”	4/4 zebras in barn
Target 2CUT	“Si hay unas vacas [en el establo], recibiré un punto.”	4/4 cows in barn
Target 2CAP	“Si hay algunos burros [en el establo], recibiré un punto.”	2/4 donkeys in barn

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